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Developing 21st Century Primary Teachers through International Collaboration: Fostering critical thinking for primary teacher training in Malaysia

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Abstract

Conceptualising the teacher as a 'technician' delivering prescribed curricula no longer represents the teaching and learning context of a rapidly changing global environment. This paper argues that the ability to apply critical thinking skills to professional practice is an essential attribute of the 21st century primary teacher. It reports one aspect of a collaborative primary education degree programme between a UK university and two Malaysian teacher education institutes. 130 students have followed the programme, taught in English, by Malaysian tutors. An essential element of the UK graduate skills framework is the requirement for successful graduates to demonstrate the skills associated with 'critical thinking'. The teaching of 'thinking skills' can be developed as a discrete area of learning. However, research suggests that transfer of these discretely taught skills to other domains is not always straightforward and improved outcomes result from developing critical thinking skills in context (McPeck, 1990; Chapman, 2001). The paper examines evidence of 'critical thinking' in a sample of written work by Malaysian students on the programme. The students' work is analysed using a framework based on the work of Baxter Magolda (in Moon, 2007). Previous, stereotypical, views of South-East Asian students as learners in

Higher Education have been challenged in more recent literature (Biggs, 1999; Kember, 2000; Ramburuth & Mc Cormick, 2001) and the work of these student teachers provides evidence of a spectrum of critical engagement with aspects of teaching and learning.

Keywords: teacher education, Malaysia, critical thinking

Introduction

The paper reports one aspect of a collaborative programme, funded by the Malaysian Ministry of Education, between a UK university and two Malaysian teacher education institutes,. The key purpose of the collaboration was to develop a graduate level award for Malaysian primary teachers to 'up-skill' the primary teaching force as part of the national economic plan. Students following the UK degree programme in Malaysia are taught in English, by the Malaysian tutors who have been closely involved in the programme development process.

As with many other nations across both the 'developed' and 'developing' world, Malaysia is reviewing its primary curriculum and re-evaluating the role of the primary teacher. Such revisions and re-evaluations arise from discussions about the nature of the knowledge and skills needed to prepare children for adult lives in the 21st century. They would include the Queensland New Basics Project, revisions to the curriculum in New Zealand and Singapore, the Curriculum for Excellence in Scotland and current discussions concerning revisions to the Primary National Curriculum in England and Wales. While changes to the curriculum have different emphases in different national and cultural contexts, the 'globalization' of educational thinking seems to be an underpinning theme.

In this view of the future, pupils will need to develop identities as both national and 'global' citizens, recognizing the significance of economic inter-dependence and able to engage productively with other cultures. The development of so-called 'soft skills' such as team work, perseverance, self management, and communication skills will become increasingly important. Educational future gazers argue that learners will need to be flexible and able to see connections between hitherto discrete areas of knowledge; to be able to evaluate evidence, solve problems, think creatively and take responsibility for their choices (see the 2020 *Vision* report, (DfES, 2007) as one of many such examples). The amount of new knowledge now potentially available also creates its own challenges and insecurities (Hargreaves 2003) as well as opportunities.

Thus, it seems likely that 21st century teachers will need very different characteristics from many of their predecessors. The technical-rationalist model of teaching, which was prevalent during the later years of the 20th century in a number of cultures, is unlikely to meet the needs of the 21st century learner. In this model, the teacher is perceived as a technician who 'delivers' pre- packaged knowledge, derived from approved text books or centrally determined curricula. To differing degrees, this vision of the primary teacher has dominated educational policy and practice for primary teachers in both Malaysia and in England, and in both countries there are now moves to reconceptualise the role of the primary teacher in the light of shifting national and global priorities.

An essential element of the UK graduate skills framework is the requirement for successful graduates to demonstrate the skills associated with 'critical thinking' in assignments and contributions to taught sessions. As we shall discuss, in the 'Western' tradition at least, this concept assumes an ability, as well as a willingness, to evaluate the ideas of others in order to assess evidence or to recognise bias, and to seek alternative ways to solve problems. These definitions of critical thinking are embedded in a Western humanist tradition (Andreotti 2008) derived from the 'Enlightenment' of the European 18th & 19 centuries, that may not apply to non-European cultures (Said 1978), or even to European-based cultures in the 21st century.

Although we grappled with many of the implications of these issues as participants in the collaborative project, we needed to acknowledge the importance of supporting the Malaysian primary education students in engaging with the attributes of the critical thinker for two reasons. The first, and perhaps pragmatic reason, was in order to enable them to meet the criteria for graduate status established within the UK University culture; the second was to respond to the concerns of our collaborative partners that the Malaysian education system had a tendency to 'spoon-feed' learners. We encountered the term "spoon feeding" on numerous occasions – from lecturers, Ministry officials, from letters in the Malaysian (English medium) press, and from students themselves. There seemed to be an agreement that education should encourage learners to develop greater independence and initiative in terms of problem solving and independent judgement if Malaysia as a nation was going to become 'world class'. In this respect then, the conception of 'critical thinking' seemed to bring both the requirements of the UK graduate framework, and the educational imperatives of at least some Malaysian educationalists and policy makers together.

Thus our project team sought to develop a degree curriculum that would respect and be relevant to the Malaysian context, and which would seek to encourage students and lecturers to move further away from this 'spoon-feeding culture' that had apparently predominated in previous, non-degree level, teacher training courses. We worked with two teacher training institutions, involving 130 students in total. 50 were following a course for primary science specialists in one institution, and 80 were training to be 'Living Skills' teachers in the other. 'Living Skills' most closely resembled the curriculum area known as Design & Technology in the UK context. Over the four years of the project we worked with a wide range of Malaysian colleagues, not all of whom participated in teaching the degree programme throughout. However, there was a 'hard core' of lecturers who retained involvement over the whole period, and who occupied leadership positions with regard to the degree programme in their respective institutions. This stable core of lecturers was essential in enabling academic and pedagogical continuity for the students, and in supporting dialogue between UK and Malaysian colleagues.

Critical Thinking:

Yaacob and Seman (1993) regard the expansion of critical thinking skills to be "one of the great challenges facing Malaysia amidst its dynamic economic development" (p.2), as it moves towards its Vision 2020. In order for the society to grow and succeed, they argue that its citizens need to become adept at questioning and problem solving, able to think laterally and look for creative solutions to complex problems. So how could we support our Malaysian colleagues in their quest to develop the ability to think critically in the students? The work of Jenny Moon proved a pertinent starting point. As part of an extensive review of the research into critical thinking, Moon (2005; 2008) synthesizes a range of evidence from across the past two decades (Meyers, 1986; Brookfield 1987; Barnett, 1997; Baxter Magolda, 1992 and 2001; Mitchell and Andrews, 2000; Kneale, 2003; Paul and Elder, 2004). She initially examines notions of critical thinking and goes on to propose practical strategies and exercises for its teaching.

Furthermore, although the teaching of 'thinking skills' can be developed as a discrete area of learning, the research suggests that transfer of these discretely taught skills to other domains is not always straightforward and improved outcomes result from developing critical thinking skills in context (McPeck, 1990; Chapman, 2001). The suggestions made by Moon

(2005) lend themselves to the design of specific skill-promoting activities that are relevant to other aspects of students' degree work and are, therefore, contextualized. Additionally, Moon (2005:13) provides convincing evidence that "A learner's capacity to think critically will grow in relation to their epistemological development." The research into epistemological development by Baxter Magolda (1992, 1994, 1996,) receives detailed attention and is drawn together to provide a model for evaluating and framing students' epistemological development. This 4-stage model describes four stages in the development of undergraduate students' thinking in which they move from an **Absolutist** position, through **Transitional** and **Independent** stages to **Contextual** understanding:

- **Absolute knowing**: Knowledge is certain or absolute. Knowledge is to be acquired
- **Transitional knowing**: There is some uncertainty – authorities may differ
- **Independent knowing**: Knowledge is uncertain. Everyone may express their own opinions. The idea of judging some perspectives as better or worse may be overlooked.
- **Contextual knowing**: Knowledge is understood to be constructed, but claims must be supported by evidence. Context is taken into account.

Baxter Magolda (1992)/Moon 2008

The model offered a useful reference tool for planning aspects of degree content and assignments in Malaysia. Although the stages are arranged hierarchically, there is evidence indicating that progression does not necessarily occur in a neat, linear way along the continuum (Baxter Magolda 1992, 2001; Kember 2001).

Critical thinking in a Malaysian context

There are some relevant questions that need to be asked when considering critical thinking in any 'non-western' context. These relate to the appropriateness of involving so called 'Asian' students in critical thinking, and their capacity to engage given the education tradition in which they have been immersed. The questions are related but need to be dealt with in turn. The first consideration is the cultural contrast of ideals between those which may be based on what may be seen as 'Confucian' notions of approaches to learning and those which are more 'Socratic' in their approach. The Socratic conception sees doubt as the first step in attaining knowledge. It promotes questioning both of and by oneself and others; evaluating knowledge rather than just taking it on face value; seeking knowledge rather than belief; the development of hypotheses. Confucian conceptions on the other hand have been described as 'effort-focused', emphasizing the transmission and acquisition of knowledge through respectful learning (Tweed & Lehman 2002). These different traditions which seem already irreconcilable are overlaid in the Malaysian context, with Islamic conceptions of education which exist within a powerful religious belief system. Western liberal views of the autonomy of the subject or discipline could be deeply problematic in a philosophy where religion must be seen as the guiding spirit for all engagement with the curriculum. Here, knowledge is not seen as valuable in itself, but only insofar as it serves to inculcate goodness in the individual and in the whole community (Halstead 2004). Encouraging students to question or to subject beliefs to critical investigation does not appear to sit comfortably within such a value system.

Those who have been involved with teaching the 'Asian' student will have come across a number of phenomena which apparently reflect these contrasting traditions. Kember and Gow (1991) quote Dunbar (1988) who identified what he saw as the 'culture-based' learning problems of Asian students' [sic]:

> Learning is seen as possessing the ability to reproduce exactly what is taught in identical form. This "reproductive orientation" manifests in rote memorization of facts, formulae, rules, tracts and schema. Unifying principles are usually over-looked, and emphasis on detail is encouraged. Learners are conditioned to accept and respect what the teacher presents as correct. The focus is on acquiring propositional knowledge and demonstrating acquisition by outright recall.
>
> Dunbar (1988) p 12 in Kember & Gow (1991) p 117

Whilst Kember and Gow point out that these views are anecdotal, Dunbar is clearly not alone in experiencing this kind of orientation, and there has been a range of research since then which both addresses and challenges a similar pattern of characteristics (Biggs 2003; Ho & Crookall 1995; Kember 2000). Tsui in 1996 observed that students were not allowed to speak out, to question and to criticize, and were unwilling to commit themselves for fear of being wrong and thus losing face (Tsui 1996 in Kennedy 2002). Biggs identifies this as a specific problem that is 'culture'- related, highlighting many students as: "too teacher-dependent, too uncritical of material they have been taught, too prone to rote memorization" (Biggs 2003:123). With such an orientation, not to mention the challenges of working in another language, it is difficult to see then how students could be expected to engage with knowledge in a deep enough way to develop understanding, think critically and achieve academically in a western context.

This is where we need to consider the phenomenon of the paradox of the 'Asian' student. When compared with their western counterparts, 'Asian' students not only matched their academic achievements, but often exceeded them (Kember & Gow 1991; Kember 1996). There are a number of explanations for this. The first relates to the practice of 'memorization' which is embedded in 'Asian' approaches to learning. Memorization is often thought of as 'rote-learning' by another name. This is seen by some as a key 'western' misconception (Kennedy 2002; Kember 2000). Kennedy describes this process as - "not an end in itself, but rather a prelude to deeper understanding, enabling the learner to savour and reflect on them [memorized extracts] later and finally to integrate them into his/her prior learning and experience" (Kennedy 2002:5). A key point here is that with every new mental 'reading', understanding is deepened. Rote learning, it could be argued, is the antithesis of this process, as it involves no depth of thinking and no understanding.

A second key factor relates to how well students are motivated. Ramburuth and McCormick (2001) found distinct differences in the use of motivation and achieving strategies between 'Asian' and 'Western' students. This in turn may reflect the different emphasis on effort within a non-western education system as central to the learning process (Tweed & Lehman 2002). This leads 'Asian' students (and their tutors) to view 'failure' as attributable to lack of effort rather than ability, meaning that improvement can be achieved simply through more work.

A very interesting further finding has come out of a number of research studies in this area by Ramsden (1988), Ramburuth (2000); Todd (1996); and Volet & Renshaw (1996). They indicate that use of the 'reproductive' approach may not be confined to 'Asian' students.

Biggs highlights a study which found that the Australian exam relied more on rote memorizing than did the Thai or Japanese equivalents (Biggs, 2003), and Kember and Gow (1991) assert that **all** students will generally use a 'surface' approach to learning if that is what the curriculum requires.

This puts the onus very much on curriculum designers and tutors (whether Asian or Western) to ensure that criticality is not just 'provided for' in terms of the curriculum, but is also understood as a key criterion for success in terms of assessment. There are implications here for both the content and pedagogy within the course, and for the assignment rubric. In terms of assessment, it is not just determining what students are asked to do and how they demonstrate that they have done it, but also how they are asked to do it and how they are helped to do it effectively. An interpretation of what is required of an assignment is necessary on the part of tutors as well as students and will impact on the type and quality of guidance given.

Modes of assessment and formative feedback

> *What and how (university) students learn depends to a major extent on how they think they will be assessed* (Biggs, 1999, p.141)

The development of critical thinking is an embedded assumption in Higher Education assessment criteria in the UK. However, this does not mean that any mode of assessment, or any assessment task, necessarily promotes the kinds of thinking that lead to an increasingly critical stance. Just as different approaches to assessment are based in different theories of learning, the use of different assessment methods can develop different beliefs about learning in the learners who experience them.

Morrison & Tang observe that "*over-reliance on testing can exert a negative effect on curricula, student motivation, self-esteem, creativity, higher order thinking and flexibility"* (Morrison & Tang, 2002, p.290). These views are not confined to the Western hemisphere but are echoed in research in China and Japan (Lewin & Wang, 1990). Recent research in Macau demonstrated that non-Western teachers were fully aware of the drawbacks of an extensive test based regime, even though they continued to design and administer tests as their main form of assessment because of pressures within the education system (Morrison & Tang 2002).

The role of assessment practices in supporting either 'deep' or 'surface' learning within Higher Education is particularly significant. The quotation from John Biggs given at the head of this section might imply that university students are all pragmatists who will do whatever is needed to pass, with no intrinsic interest in learning. However, what Biggs is suggesting – and goes on to explore – is that curriculum design in Higher Education is not only concerned with what will be taught but also how *learning about learning* will be supported in order for deep learning approaches to be developed. There is no evidence to support the idea that some learners are "naturally" surface or deep learners. On the contrary, the research evidence suggests that learners *learn* to be one or the other as a result of their educational experience (Kember & Gow 1991). It also appears to be the case that learners move between the two approaches depending on the nature of the task and how it is presented to them (Biggs, 1999, Prosser & Trigwell, 1999). How students experience assessment is thus a significant element of this academic support process.

Setting the assessment task is, however, only part of the story. The tutor's role is central, both in developing the necessary knowledge base, skills and understanding to enable students to approach the assessment task appropriately, and in providing formative feedback during the learning process and on the assessed task itself. This requires certain epistemological beliefs on the part of the tutor, and an understanding of epistemological development. During our collaborative project, a large amount of staff development time focused on the theme of developing critical thinking and how it might be recognized within different contexts.

Method

In order to identify evidence of development within Baxter Magolda/Moon's epistemological framework, a sample of students' written assignments were scrutinised.

The sample represented approximately 10% of all work submitted over the four years of the degree programme. These assignments had been submitted for assessment as part of the degree programme, and had been marked, moderated and further scrutinised by an independent External Examiner as part of the University quality assurance procedures before being examined for the purposes of our research. Thus all assessment procedures were completed before the assignments were subjected to further analysis.

The sample was selected collaboratively by tutors from the Malaysian institutions and UK University tutors to represent the spread of marks in each subject, for each academic semester. It was therefore a form of 'convenience sample' in that photocopies of the assignments had been retained for External Examiner, and as such, available to the researchers in the UK. However, in other respects it could be seen as a stratified sample, since examples had been selected to represent different levels of achievement within each subject. Finally, the researchers had had relatively little influence over the choice of assignments selected by the different subject teams.

Each of the three members of the research team read a selection of assignments, and identified evidence of stages of thinking as outlined by Baxter Magolda/Moon. A form of 'procedural accuracy' (Miles & Huberman 1994: 242) was employed by exchanging examples of assignments between members of the team to compare attribution to categories, and to discuss differences of interpretation. These discussions led us to develop a series of 'blended categories' in recognition that the Baxter Magolda/Moon stages of thinking are necessarily broad, and also that students sometimes showed evidence of more than one stage of knowing within a single assignment.

We have made no attempt to quantify examples of different stages of thinking within the sample of students' written work. Our purpose has been interpretive: to seek to gain some insight into how these Malaysian primary education students have explored their own developing knowledge and understanding of educational issues during the degree programme, and to identify opportunities and any barriers to their development of critical thinking. What is presented below is just a small selection of extracts from the sample, chosen to exemplify the stages of knowing.

Indicators of stages in epistemological development

There are examples in the students' writing where the stage of the individual's thinking distinctly emerges and others where it is less easily identified. In some cases, the

work displays features of different phases of development and the student seems to be operating at more than one level of understanding. This is not particular to the Malaysian students or any one cultural or national group and the notion that ways of knowing or understanding are context-dependent is again pertinent. It is fair to assume that students will have a diversity of experience on which they can draw as well as very specific lenses through which they interpret.

From 'Absolute Knowing' to 'Contextual Knowing':

What are the indicators in a student's written work that she or he may be at the 'Absolute Knowing' stage of development? In the following examples, the claim that a student is currently at this level is based on criteria drawn from the work of Baxter Magolda (1992) and others who have used her framework as the basis of their own research (Carney 2002; Moon 2008). The criteria include features such as a commitment to knowing and acquiring the correct answers from experts; certainty; a belief in the binary opposites of right and wrong, and in cause and effect. In their summaries and evaluations, some students who exhibit characteristics of this stage seem almost to be applying an A+B=C formula to what they see, experience and read. There may be little evidence of the social, environmental or historical contexts in which knowledge is purported to exist.

The first example is taken from a Child Study essay written by a female student in the first year of the course. 'Zaidah' wrote this about her focus child's use of language:

> When I deal with A during my SBE, she used her native language that is Terengganu slang. She stay in Terengganu since she was born, therefore she prefers to use this country slang rather than proper language. Skinner believes that language acquisition is a passive process in which children absorb language from their environment. (Hergenhahn & Olson, 2003)

There are aspects of this brief extract that appear to demonstrate Zaidah's current understanding of how to demonstrate her learning. She has referred to a well-known theoretical stance, that of the behaviourist, Skinner, and applied it to her assessment of the child's learning. Zaidah does not go on to challenge the theory, to consider any other theoretical positions, or to discuss the implications. It is apparently a simple statement of what she understands to be a fact. This implies that she is using a literal, broad interpretation of the theory that either satisfies her or she believes will satisfy the criteria used by the markers of her work. In the context of Zaidah's school experience this may well be the case: she has demonstrated that she has knowledge of a theory, that she has read appropriate academic literature and that she has connected these to the observation of the child's language behaviour. She has, in effect, 'ticked the necessary boxes'.

Conversely, it could be the case that Zaidah's argument has been compromised by her ability to express herself in written English, rather than an inability to pursue an issue or consider a more complex interpretation of information. Although there are inconsistencies in the threads of some points it is not entirely clear whether these are attributable to the limitations of Zaidah's vocabulary or to her level of understanding. For instance, Zaidah states that the child 'prefers' to use slang rather than 'proper language' as if the child has made a conscious decision to speak in the local dialect, but then Skinner is invoked to support a view that language learning is 'absorb(ed)' and therefore unconsciously shaped by environmental factors. It is possible that Zaidah is suggesting a cultural predisposition toward the local language rather than a preference.

From this and further examples in the assignment there is, nevertheless, a sense that the theoretical model is used uncritically, without reference to other models, that the data is not interrogated, and that knowledge is presented as fixed. There are occasional indications that the student has begun to grapple with the information she has accessed from various sources but for the main part she has taken an unquestioning stance whereby she makes some basic assumptions indicating that she is still largely at an absolutist stage of knowing.

In the next section, contrasting examples are taken from assignments completed by three different students during the second year of the four year programme. The first is from a reflective journal, based on practical experience in school, written by a student specialising in primary science education:

> I think I should bring real seeds and fruits during the lesson because it will attract pupils' curiosity towards learning. During the activity teacher should give a clear and precise instruction before pupils start the hand on activity. But remember to give the pupils more opportunities by themselves to explore and teachers just act as facilitator

Here 'Rosman' moves between a form of independent knowing, expressing his own beliefs about teaching and learning, and a more absolutist stance, signified by the use of imperative verbs.

The next examples are drawn from a written assignment. The title for the Semester was "Assessment for Learning" and it might be argued that, although collaboratively planned with Malaysian colleagues, the content of the taught sessions and academic reading were driven by a western notion of assessment and its purposes. The students' experiences in school as pupils, and more recently as 'interns' or trainee teachers during school practices, were of assessment ***of*** learning, of memorisation of facts, and reproduction of knowledge of theories or formulae (Dunbar 1988; Tsui 1996; Kember 2000; Kember and Gow 2006). The course had, therefore, challenged many of their perceptions and implicit understandings of the purposes of assessment in schools. It had necessitated a step away from the known and into new territory. The size of this metaphorical step for each student is indeterminate but there is a sense in the writing of what it might have been.

In their essays, the students were required to discuss the underlying reasons for assessing children's learning and they presented a diverse range of responses to the task. Some drew mainly on familiar strategies but others were able to examine their own experiences and begin to evaluate the validity of approaches. 'Murad' took a fairly straightforward, unquestioning stance when he states that:

> The children hav(e) the assessment to improve their work and relate their performance to the standard expected. In the other hand, teachers will apply the assessment to get feedback of their teaching skills and methods. The feedback will help the teacher to evaluate and improve of their teaching skill. Then the school will use the assessment to evaluate the information to see the effectiveness of their teaching and learning in their school and later using the data to interpret the performance of the school for improvement.....In other way, teacher, school, policy maker and children are involved in the assessment for improving the children('s) learning.

Although several possible purposes for assessment are considered in this example, there are many assumptions. The first statement, for instance, seems to be that the role of assessment for the children who are assessed is to demonstrate to them how they perform against a norm. The premise that follows on from this is that the content of the assessment is

correct and that children once they know what is expected can do what is necessary to improve their performance. Murad does not include any consideration of the information that might be gleaned from analysis of pupil performance or the appropriateness of the assessment criteria to all children in a cohort. The way that the assessment is applied and interpreted is used uncritically, with no apparent awareness that there may be flaws or gaps in this approach. This suggests that Murad is very much working at an absolutist stage

A contrasting extract comes from 'Salma's' assignment and reflects a far more sophisticated understanding of the subject. It is only a small part of an argument that is sustained over several pages and is cumulatively developed in a probing, thoughtful, and often thought-provoking, way.

> X is the only state that have monthly testing in their primary schools. No wonder if X state succeeded in maintaining the best performance and beat other state in Malaysia every time the UPSR result is announced. The question is although X achieved the best result, is the pupils undergone the learning progress that worth their achievement?

It can be seen even in this brief sample of Salma's work how she begins to penetrate the claims and challenges an established feature of the testing culture in many eastern and western countries. She continues by citing the state's results from a different type of test and questions why the exceptional performance is not maintained and transferred to another context. Drawing on the work of Santrock (2008), she postulates that the testing regime lacks 'fairness' because the teaching content and method of instruction are not always appropriate and 'pupils do not fulfil(led) their internal satisfaction'. In her extended analysis, Salma contemplates the information at a deeper, less overt level than any of her peers at that stage of the programme.

Although her English expression is not perfect, Salma manages to effectively communicate ideas drawn from various sources. Indeed, there is more than one possible interpretation of her perspective that 'pupils do not fulfil their internal satisfaction'. She may, for instance, be suggesting that children are not motivated, or that the nature of the assessment is frustrating to many as it only demands surface or strategic learning rather than intense cognitive engagement, or that it is easily within the competence level of many pupils and is not, therefore, stimulating or motivating. Nevertheless, she debates the evidence, appears at times to take almost an outsider view of it, and then arrives at an understanding informed by reading, critical thinking and reflection.

These features are representative of Salma's work across several subjects. In King and Baxter Magolda (2005:576) terms, she has reached a 'Mature' level of cognitive development and has the "Ability to consciously shift perspectives and behaviours into an alternative cultural worldview." The critical thinking that SA has applied to her assessed work has been transferred, or perhaps developed separately, to her practical experience suggesting that she is firmly at the independent stage and is approaching the stage of contextual knowing. She has broken away from known, habitual behaviours and combined her new understandings to innovate her teaching. This can be a very risky business for a student teacher and Salma seems to have applied reasoning and reflexivity to a personal set of principles. She has developed the ability to accommodate doubt, evaluate contextual evidence, and consider refracted possibilities rather than viewing all experiences and situations through a single cultural lens. Whilst this requires certain boldness, for many learners it is part of the joy of learning and the challenge of working at the edges of previously established boundaries. However, it has to be acknowledged that such expectations and ways of viewing knowledge

may bring with them complex uncertainties and dilemmas about underlying values for both tutors and students, as this extract from her reflective journal in the final semester of the programme demonstrates:

> If I want to create a building community means that, it might progress slowly or pupils' behaviour might not be constant. So I think it is crucial to let others know about our own practice and discuss it with other teacher although I realise there is a risk that some teachers might not accept it or I might be involved in 'cultural suicide' or in other words some teachers might have negative impressions towards me (Brookfield 1995)."

Making the Transition

It is argued by Moon (2005, citing Baxter Magolda 1994, 1996) that many students will not have reached the stage of contextual knowing by the end of their first degree. There are certainly numerous examples amongst the undergraduates with whom we work of students still on the journey. Whilst this makes Salma a rare example of an advanced learner, capable of taking a relativist position, there are students who have during the course of the Malaysian programme moved away from their originally entrenched positions and begun to show greater confidence and criticality in their search for informed answers to the complexities of classroom life. Amongst these is 'Shahidah' who in several assignments seemed to oscillate between different positions and yet now seems better equipped to wrestle with a range of perspectives and make decisions based on the information she gleans. For example, in an assignment written towards the end of her third year she wrote

> In Malaysian context, Najah et al (2004) found that the percentage of preschooler of orang asli children that drop out in Baling at Kedah was high. In 2001 the percentage of the drop out is 40%, 47% in 2002 and 50% on 2003. This happened due to the lack of parents involvement in their children education. For these reasons, increasing family involvement in the education of their children is an important goal for schools...many parents still not realising the important of getting involve in school. Many of them are refusing and did not know how to get involve. How does this could happen? Is it because of lack of school activities of programs that makes parents getting involve in school? Or is it by parents' own attitude and perception?

Although Shahidah has not recognised the possibility of the different cultural perspectives that may be held by orang asli (aboriginal) peoples in Malaysia, nevertheless her questioning stance indicates a move away from an absolutist stance (parents are lacking in interest) towards the recognition that there may be more than one reason for pupil drop-out. This suggests that she is likely to be operating at the transitional/independent stage of development

Interestingly, in one of the final assignments of the programme, Shahidah's writing attracted our attention because of the way in which her stance shifted from one of apparently standing back and evaluating the evidence in a balanced and considered way to a literal interpretation of learning behaviours and how to manage them. This seemed to be especially so when Shahidah, a devout Muslim, was setting her teaching within the context of Malaysian 'noble values' for Science:

> I should not scold the pupils if they did make a mistake. But, I will tell them the reason why they should do or don't. This is the way I inculcate value to them. Ismail Jusoh (1995) has stated that, '…pure and neat surrounding of mental, emotion and

> spiritual would be produced if the teacher always integrate noble values through their teaching…I realize that this is the base(ment) for the children to understand the noble value thus to behave well since the children will know that God knows everything they did.

For us, as lecturers from a different culture, holding different religious beliefs, interpreting such views is fraught with difficulty. From a liberal western perspective, Shahidah seems to hold a literal belief that children should 'behave well' because their actions are being observed by God, rather than because they are motivated by the learning environment and the ethos of the classroom. Although at other points in this work, she rationalizes her expectations of her pupils and the teaching she undertakes, her main argument in this fragment is that if she tells the children what is expected they will respond accordingly, on the basis of shared religious belief. There are ways of justifying such a position and there is research evidence that suggests that pupils can respond positively when presented with clear parameters and reasoning. Nevertheless, it may be an inappropriate assumption that they will do so on all occasions, and does not allow for the idea that there may be a variety of subtle and complex explanations for off-task behaviour (Powell and Tod 2005). It could have benefited Shahidah's argument in the assessed piece of work, and her knowledge of teaching, if she had considered the issue in a more diverse manner, recognizing that alternative perspectives might also provide explanations.

It is evident when examining students' work closely that their epistemological development, as with other forms of learning, does indeed occur at different rates and fluctuates according to the design and demands of the task (Moon 2008) In the samples scrutinised, there appears to be a direct correlation between the student's view of knowledge and their ability to think critically, and, therefore, the level of competence with which they meet the criteria of degree level assessment.

Findings

One of the key finding then, in terms of promoting critical thinking in this project is the significance of the assignment design. It became clear during the project that some assignments were better than others in providing for, and demanding, critical thinking. It could be that assignment specifications which require students to provide a rationale for a lesson plan in school for example, might encourage students still at an early stage with their critical thinking, to think that there is one way of doing things – i.e. 'good practice' by their tutors or schools, and fail to consider significant contextual factors, other views, or alternative 'solutions'. An absolutist way of knowing may in this way be positively encouraged by the assignment set. An assignment which asks students to take a position in relation to an educational issue will require students to have strong views and move students from an absolutist stage towards taking a stance commensurate with the independent stage. It may however discourage students from demonstrating a more relativist position required for contextual knowing where alternative view points which show awareness of the complexities of the culture and the context are ignored or underdeveloped by the student for fear of what might be seen as 'weakening' the argument.

This is not to suggest that such assignments are unsuitable, but rather that careful consideration needs to be given to a number of related factors. Course designers need to think carefully about where and when assignments are placed in the course in terms of stage and progression and what the expectations should reasonably be. There is a sense, for example,

that when students have recently been immersed in school placements they tend to accept the culture and practices they experience relatively uncritically, with limited overt reflection on their learning from the degree. The assignment specification or brief needs to be clearly and carefully expressed, whilst still allowing for a degree of interpretation on the part of tutors and students. The nature and quality of the guidance and feedback given to the students by the tutors both verbal and written is clearly paramount. However, this relies on tutors' own conceptual understanding, not just of the content that is being assessed, but also of the stages in thinking reached by their students. From a pedagogical point of view, they need to understand and recognise the stage of development that the students are demonstrating in order to successfully steer and guide them to towards a more contextual way of knowing. This of course implies that they themselves have epistemological beliefs that are reasonably relativistic and sophisticated to embrace a contextual way of knowing. As Moon (2008: 107) points out, this may not always be the case.

Conclusion

As with the findings of Baxter Magolda (1992) who studied undergraduate students in the United States, not all students reached the stage of mature, or contextual thinking, and of those who did demonstrate instances of this thinking in their later work on the programme, none of them maintained this level consistently. Similarly, Jenny Moon based in the UK, suggests that the development of critical thinking is a "general shift from absolutist knowing to contextual knowing, with jumps forward and regressions" (Moon 2008, p.111), and that fully relativistic or contextual knowing is a state that would usually be attained after graduation – if at all. Vanessa Andreotti and colleagues in New Zealand for example, found that teachers already in post held views about the new New Zealand Curriculum that also reflected a spectrum of epistemological positions (Andreotti & de Souza 2008). Thus it may not be realistic to expect primary teachers to be 'critical thinkers' in all situations. Our findings in relation to the effects of the nature of the assignment task indicate that 'contextual thinking' may itself be context dependent.

A final significant issue arising from the research is that of language. Clearly reading, writing and talking in an additional language is going to be a challenge for any student not studying in their mother tongue. Apart from the obvious difficulties, it must be acknowledged that it takes longer to think critically than to leap to conclusions (Moon 2008). An even more significant question however is how far the Malay language of Bahasa actually facilitates critical thinking. Does the language contain the ambiguity and subtlety required to glean different interpretations? Does the structure of a language which has no tenses allow for conditional verbs, provisionality, speculation? We do not know the extent to which the students are thinking in English or not, but either way they will have had to learn constructions that simply do not exist in their own language. This cannot be answered by non-Bahasa speakers and in any case is a beyond the scope of this paper; but it is clearly a key question for anyone working across two different cultures and a significant area for further research.

However, we do suggest that, perhaps contrary to indications from earlier research, the evidence from our findings indicates a developing capacity on the part of the Malaysian students to engage with cultural complexity; to evaluate evidence from practice and to align this with theoretical perspectives; to draw independent conclusions from their observations

and investigation in school and to recognise alternative viewpoints. These qualities seem to us to be those required of the 21st century primary teacher.

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